
Plan Overview

A Data Management Plan created using DMPTool

Title: Fragmentation and Dilatancy Model on Barringer Meteor Crater

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Project abstract:

Barringer Meteor Crater in Arizona: the youngest, least eroded, best exposed, and the largest known crater on earth. This Project proposes an inquisitive investigation of the in situ fragmentation during the formation of Barringer Meteor Crater in Arizona. In this study, we will perform numerical simulations on iSALE2D and will incorporate the fragmentation and dilatancy model to produce an accurate synthesis of the geologic survey data to determine the portion of subsurface porosity and the asymmetries of the subsurface structure (moho uplift, central uplift) governed by both simulation models and high-resolution seismic reflection data are diagnosed to determine the trajectory of this meteor crater.

Start date: 01-02-2021

End date: 12-02-2022

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Fragmentation and Dilatancy Model on Barringer Meteor Crater

Types of data

The Division of Earth Sciences requires that full data sets, derived data products (e.g. model results, output, and workflows), software, and physical collections must be made publicly accessible within two (2) years of final collection.

Data mainly comprises the results of a February 2019 gravity survey of Barringer Crater (colloquially known as “Meteor Crater”) near Winslow, AZ. Dr. Peter James and Mitchel Christopher have completed several analyses in an effort to combine previous survey data with their own survey to generate an updated Residual Bouguer Anomaly (RBA) map for Meteor Crater. The addition of this modernized survey—including crucial gravity measurements on the crater wall—yields a robust model that can be utilized for advanced crater modeling and future Meteor Crater research.

Data and metadata standards

Standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies).

1. Microsoft word documentation
2. PDF Format

Policies for access and sharing

It is the responsibility of researchers and organizations to make results, data, derived data products, and collections available to the research community in a timely manner and at a reasonable cost. In the interest of full and open access, data should be provided at the lowest possible cost to researchers and educators. This cost should, as a first principle, be no more than the marginal cost of filling a specific user request. Data may be made available for secondary use through submission to a national data center, publication in a widely available scientific journal, book or website, through the institutional archives that are standard for a particular discipline (e.g. IRIS for seismological data, UNAVCO for GP data), or through other EAR-specified repositories. Data inventories should be published or entered into a public database periodically and when there is a significant change in type, location or frequency of such observations. Principal Investigators working in coordinated programs may establish (in consultation with other funding agencies and NSF) more stringent data submission procedures.

Both the survey data and the results of the study are readily available for the members of the solid earth and planetary research group at Baylor University. Data may be accessible to the Outside investigators (not affiliated with the university) upon request and with appropriate approval from the principal investigator, Dr. Peter James.

Policies and provisions for re-use, re-distribution

Policies and provisions for re-use, re-distribution, and the production of derivatives.

Both the Principal investigator and Data manager are responsible for re-use, re-distribution of data, and declares no competing interests.

Plans for archiving and preservation of access

Plans for archiving data, samples, and other research products, and for preservation of access to them.

Data, Samples, and research products are preserved through lab databases and lab computers of the data manager and the principal investigator.